

Do Non-Traditional Income, Size, and Growth Affect the Performance of the Banks? Evidence from the Big Three Countries of South Asia

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Abstract

Purpose- The aim of this study is to examine the impact of non-traditional income, size and growth on the performance of the banks in big three economies of South Asia, as in the modern banking, non-traditional income plays a vital role by acting as a link between bank and its customers.

Design- This study utilized the annual data over the period from 1996 to 2015, data were obtained from Federal Reserve Economic Data (FRED). This study examines the long-run as well as the short-run relationship among variables through the statistical technique of Panel ARDL.

Findings- The findings of this study showed a significant and positive relationship between non-traditional income and return on assets as well as bank size and return on assets. While the association among the growth and return on assets is negative but significant.

Policy Implications- Policy recommendation of this study suggests that banks should also explore new avenues of non-interest valued added services to their customers which will not only facilitate their customers also attract new customers which ultimately enhance the performance of the banks as well as the country.

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Introduction

The firm's performance plays a vital role in every sector of the economy. A measure of the bank's performance depends on the firm's efficiency and the market in which it operates; it is also called financial stability or financial health of the financial sector (Isik, Kosaroglu, & Demirci, 2018). Several financial measures can be used to evaluate firm performance. Some of the common financial measures include income, equity return, an asset to income ratio, profit margin, sale growth, adequacy of capital, liquidity ratio, and stock prices. The company performance is an important factor, which is used as a dependent variable in strategic management research worldwide. Despite its relevance, its definition, dimensionality, and measurement, which limits advancement in the research, that are hardly acceptable (Bonomi Santos & Ledur Brito, 2012).

There are few studies which examined the concerns of diversification, the volatility of income, size and capital ratio in Europe. Mercieca, Schaeck, and Wolfe (2007) are among those researchers who investigate the effect on average profitability of diversification by estimating the result of an increase in the non-interest income of 755 small European banks. Their findings suggest that increases in non-interest activities have produced two main types of effects: direct effects on non-interest activity and indirect impact from diversification changes. Furthermore, average profitability leads towards negative results at the end, while on the other hand there is an effect of equivalent positive volatility. These findings indicate the increased in the net interest revenue volatility which compensates the benefits of diversification and is robust to some more investigation. The link between banking risk and product diversification among the 14 countries of the European banks, is particularly based on commission and fee activities, indicate a shift to towards riskier non-interest activities of the financial sector during the period of 1996 to 2012.

The objective of this study is to investigate, is the Non-traditional Income, Size, and Growth affect the Performance of the Banks? Consolidated financial institutions and other structural reforms have generated highly diverse sources of revenue. Although banks do not receive interest rates, the current literature remains silent on the impact of bank performance and environmental characteristics through functional diversification strategies, while recent research has concentrated on the relationship between non-interest bank income, growth, and size. For banks of different sizes and levels of capitalization, diversification measures and performance relationships remain unexplored in the financial crisis. This study fills this gap by examining the association between diversity and performance while incorporating the effects of diversification in various business sectors. The risk and return implications of different product mixtures using more exact definitions of traditional and non-traditional parts. This research also examines whether certain BHCs can more benefit from diversification through an analysis of bank size and their performance. This study primarily measures the interactive effects between non-traditional banking, bank size, and banking growth.

The remaining section of this article consists of a literature review on the subject study, data, and methodology, empirical result and last section give the conclusion of the study.

Literature Review

The existing article on the factors that affect a firm's performance uses as the main structure of elements that frequently includes non-traditional income, growth, and size of the banks. In general, this set is made up of other specific factors concerning the specific aim of the research. The related studies use a linear framework, either vector auto-regression error correction model or panel database models. Brighi and Venturelli (2014) investigated the relationship between non-traditional revenues and firm's performance. They used the panel data from 52 Italian Bank Holding Companies (BHCs) from 2006 to 2011. They estimated two separate econometric models by using panel data regression. The first one tests for the actuality of a positive relationship between performance and diversification for both traditional and non-traditional revenue bearing

activities, while the second model targets to establish a positive association between the performance and diversification for both the conventional and individual components of non-traditional revenue are being investigated. The key result of the non-traditional revenue component positively enhances the profitability as well as risk-adjusted profitability altogether. According to Stiroh (2004) the U.S. investigate the data of banks between 1984 to 2001 and found that in the 90s there was a broad increase in the relationship between net interest and non-interest growth; in addition, non-interest income was far more volatile than net interest income; additionally, in the 90s the failure of operating turnover could be directly linked to a drop in volatility. Lastly, in Stiroh's opinion, risk-adjusted returns are adversely related to non-interest income shares at the banking level. Isik et al. (2018) observed the bank profitability is affected by the decisions about growth rate and bank size based on data analysis from 2009 to 2016. Their findings also explore that the link between the size of the bank and measure of profitability is not linear (concave) while the association between the growth rate and profitability is positive but not significant.

Chiorazzo, Milani, and Salvini (2008) investigated the connection between non- interest income and profitability. This study contributes to the stream of research through an empirical analysis through the involvement of the Italian banking structure during the period 1993-2003, while panel regression model was employed for risk-adjusted return and income diversification measure that derives from a Herfindahl–Hirschman Index of specialization. They found a positive link between income diversification and risk-adjusted returns, which describe that the increase in non-interest income is associated with an increase in profits per unit of risk. They also found an inverted U-formed connection between bank size and profit per unit of risk. Vallascas, Crespi, and Hagendorff (2012) examined the impact of income diversification on the performance of Italian banks. This study utilized the data for the period of 2006-2008. The regression analysis is employed to identify the link between revenue and profitability diversification. The findings of this study showed a negative association between performance and income diversification during the financial crisis.

Zhou (2014) examined the influence of non-interest income on profitability. They used the panel data of 62 central Chinese commercial banks over the period 1997-2012 and employed panel data regression model. Findings of the study described that there is no significant relationship between income diversification and bank risk. The reduction of the whole risk was attributed to the significant decrease in the risk of interest income of the business. However, the proportion of non-interest income also increases its volatility, and thus it also enhances its contribution to overall risk. Isik et al. (2018) observed the bank profitability is affected by the decisions about growth rate and bank size, finding of the research based on the data for a period of 2009-2016 and found the linkage between bank profitability, size and growth rate by utilizing fixed-effect panel regression analyses. The findings showed that the link between the various size measures and profitability occurs not linear (concave). While the growth rate is positively associated with profitability, but these findings are not statistically significant.

This research work aims to analyze, is the Non-traditional Income, Size, and Growth affect the Performance of the Banks? Although banks do not receive interest rates, the current literature remains silent on the impact of bank performance and environmental characteristics through functional diversification strategies. While recent research has concentrated on the relationship between non- interest bank income, growth, and size, this study fills this gap by examining the association between diversity and performance while incorporating the effects of diversification. This research also examines whether certain BHCs can more benefit from diversification through an analysis of bank size and their performance. This study mainly analyzes the interactive relationship between non-traditional banking, bank size, and banking growth in the big three economies of South Asia.

Data and Methodology

Variable and Data Source

The sample data for this study obtained from Federal Reserve Economic Data (FRED), the yearly observation was taken over the period from 1996-2015. This study took Firm's Performance as the dependent variable, while explanatory variables consist of Non-Traditional Income, Size, and Growth. There are many other distinctive researches studies around the globe which combined these variables (Brighi & Venturelli, 2014; Chiorazzo et al., 2008; Isik et al., 2018; Margaritis & Psillaki, 2010; Vallascas et al., 2012; Zhou, 2014).

The common functional form of this study is as follows.

$$ROA = f(\text{Non-Traditional Income, Size, and Growth}) \dots\dots\dots \text{Eq. 1}$$

Table 1 - Variables Description and Source

Variable	Description	Units	Source
ROA	Return on Asset	(Annual %)	FRED
NTI	Non-Traditional Income	(Annual %)	FRED
SZ	Size	(Annual %)	FRED
GR	Growth	(Annual %)	FRED

Econometric Model of the Study

$$ROA_{it} = \alpha_0 + \alpha_1 NTI_{it} + \alpha_2 SZ_{it} + \alpha_3 GR_{it} + \varepsilon_{it} \dots\dots\dots \text{Eq.2}$$

Where:

ROA = Return on Assets NTI = Non-Traditional Income

SZ = Size GR = Growth

i = Firm in the Panel t = Time Period

α_1, α_2 , and α_3 = Partial slope coefficient

The Pooled Mean Group (PMG) Estimator

As relatively new cointegration test, (Pesaran & Smith, 1995), (Pesaran, 1997) and (Pesaran, Shin, & Smith, 1999) have presented the auto-regressive distributed lag (ARDL). The simple changes to standard methods were of major importance for parameters to be constantly and effectively assessed in the long run. While (Johansen, 1995) discussed the existence of long- term relationships only in the context of the co-integration of integrated variables, (Pesaran et al., 1999) discussed this assumption and presented the econometric advantages for PMG and MG over other methods. First, cointegration tests not required for the use of PMG and MG estimators. In addition, it is no longer necessary to provide the validity of stationarity or integration of variables to estimate long- term relationships and to pre-test unit roots as this method allows estimates of different variables with a different stationary order, i.e., whether the variables are stationary at I(0) or I(1).

Furthermore, this model is appropriate for panels of large N and T sizes. A small or a long panel is therefore not a problem. Secondly, we can evaluate the short and long term model (ARDL) effects simultaneously. Thirdly, an autoregressive distributed lag is available to solve the failure of the hypothesis on the long- term coefficients estimated due to endogenous problems in the Engle-Granger method.

Additionally, PMG allows heterogeneous country by country for short-term coefficients, including intercept, adjustment rate for long- term balances and error variances, while long-run slope coefficients restricted to homogeneity across nations. However, several requirements apply to the validity, consistency, and effectiveness of this methodology. For a long- term relationship between the variables, the error correction coefficient must be negative and must not be below than -2. Second, it is necessary to assume that the residual of the error correction model resulting from the consistency of PMG estimates is not seriously correlated and that the explanatory variables are considered to be exogenous. These conditions can, however, be met by including the ARDL (p, q) lags for dependent (p) and independent (q) variables in error correction form. Though both allow us to work on dynamic panel technique, the relative size of T and N is important, which helps to prevent the bias of the average estimators and solve the problem of heterogeneity to maintain that the process of growth is based on heterogeneity treatment. Moreover, the average small n estimators are very sensitive in this approach to outliers and small models (Favara, 2003). Finally, this estimator is especially useful if the long- term balance between variables in different countries is reasonably expected to be similar.

In this approach, the medium estimators are also very sensitive to outliers and small model permutations for small N (Favara, 2003). This estimating is especially useful when the long- term equilibrium relationships between variables in each country are reasonably expected to be similar. The following is the basis of the PMG equation:

$$y_{it} = \sum_{j=1}^p \lambda_{ij} y_{it-j} + \sum_{j=0}^q \delta_{ij} x_{it-j} + \varepsilon_{it} \dots \dots \dots \text{Eq.3}$$

Where i= 1,2,...,N is the number of countries; t=1,2,..., T is the number of time; y_{it} is the dependent variable; x_{it} is the vector k*1 of independent variable; δ_{ij} is the coefficient vector of k*1, scalars; λ_{ij} is the disturbance vector, and the term disturbance is a null mean, a no variance.

Results & Analysis

The Table 2, describe the results of descriptive statistics, minimum and maximum values of the variables of the data. Similarly, values of standard deviation, Skewness, and Kurtosis, Jarque-Bera, and the probability of Jarque-Bera also provided in this table. All these values provide the general qualities of the variables included in this study.

Table 2 - Descriptive Statistics

Description	ROA	NTI	Growth	Size
Mean	1.08	38.28	38.04	41.85
Median	1.02	35.51	35.68	37.71
Maximum	6.55	84.06	64.49	68.76
Minimum	-1.44	22.31	19.61	21.61
Std. Dev.	1.02	11.72	12.63	13.05
Skewness	2.17	1.19	0.66	0.59
Kurtosis	15.72	5.43	2.50	2.35
Jarque-Bera	452.13	26.14	5.026	4.62
Probability	0.00	0.00	0.08	0.09

The Table 3, describes the stability series of the unit root test. The variable is static or not; in the current study, we used two separate units (Levin, Lin & Chu, Im, Pesaran, and Shin) tests for further authenticity of the results.

Table 3 - Unit Root Test

Variables	Levin, Lin & Chu test		Im, Pesaran and Shin test		Decision
	Level	First Difference	Level	First Difference	
ROA	1.8726 (0.9694)	-1.8843 (0.0298)	-1.3481 (0.0888)	-3.8718 (0.0001)	I(1)
NTI	-0.1782 (0.4293)	-1.4363 (0.0755)	-0.2276 (0.4100)	-3.0242 (0.0012)	I(1)
GR	-2.1143 (0.0172)	-2.0878 (0.0184)	-0.2662 (0.3950)	-2.0295 (0.0212)	I(0)
SZ	-1.4674 (0.0711)	-1.7199 (0.0427)	0.9135 (0.8195)	-2.5740 (0.0050)	I(0)

Table 4, demonstrating the results of the Johansen Cointegration test, as we knew if the probability value comes less than 5% so it means cointegration can exist. As per the results of table 4, there is cointegration among the purposed variables. Its means suggested variables move together in the long run. Hence we can proceed for the panel ARDL model.

Table 4 - Johansen Fisher Panel Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Prob.
None	0.3934	43.5297	20.8561	0.0202
At most 1	0.2811	19.5308	15.7970	0.0552
At most 2	0.0728	3.6880	15.4947	0.9271
At most 3	0.0011	0.0560	3.8414	0.8129

Trace test indicates there are two cointegration, at the 0.05 level

The Table 5, showing the outcomes of the long run equation of Pooled Mean Group Model. The relationship between Non-Traditional Income and Return on Assets is positive and significant. It means if we increase 1% in Non-Traditional Income, then there will be a positive change of 0.0316 in Return on Assets. While the relationship between Growth and Return on Assets is negative and significant. In the last, there is a positive and significant relationship between the size and return on assets.

Table 5 - Pooled Mean Group (PMG) Long Run Equation (Dependent Variable: Return on Assets)

Variable	Coefficient	Prob.
NTI	0.0316	0.0012
Growth	-0.0683	0.0094
Size	0.0701	0.0018

Table 6 describes the results of the short run equation of Pooled Mean Group Model of the whole panel in the study. These short-run results show there is a negative and insignificant relationship between Non-Traditional Income and the return on assets, while there is a positive and insignificant relationship among growth, size, and return on assets. These results describe there is no association among the dependent and explanatory variable in the short run.

Table 6 - Pooled Mean Group (PMG) Short Run Equation (Dependent Variable: Return on Assets)

Variable	Coefficient	Prob.
NTI	-0.0145	0.6053
Growth	0.0049	0.9757
Size	0.0525	0.7875

The Table 7, explains the country wise short-run results of the panel of the Pooled Mean Group Model. The first country in the panel is Pakistan, result describe that there is a negative and significant relationship between Non-Traditional Income and Return on Assets, on the other hand, there is a positive and significant relationship between Growth, Size, and Return on Assets.

Table 7 - Short Run Result for Each Country (Dependent Variable: Return on Assets)

Countries	Variable	Coefficient	Prob.
Pakistan	NTI	-0.0680	0.0012
	Growth	0.2630	0.0258
	Size	-0.2173	0.0252
Bangladesh	NTI	0.0255	0.0000
	Growth	-0.2945	0.0000
	Size	0.4273	0.0000
India	NTI	-0.0009	0.0034
	Growth	0.0463	0.0001
	Size	-0.0524	0.0000

The results of Bangladesh in the short-run explain that there is a positive and significant relationship between Non-Traditional Income, Size, and Return on Assets, while there is a negative and significant relationship between Growth and Return on Assets.

The results of India for short-run equation show a negative and significant relationship between Non-Traditional Income, Size, and Return on Assets and there is a positive and significant relationship between Growth and Return on Assets in India.

Discussions

The impact of the non-interest income on the performance of the bank is vital in the modern banking industry as it emerged as one of the important value-added services in the banking industry. Former studies have been (Ahamed, 2017; Gambacorta, Scatigna, & Yang, 2014; Lee, Yang, & Chang, 2014) explore that role of the non-interest income is positive and significantly on the performance of the banks. Growth of the banking industry is also beneficial for every economy as it also plays their role to strengthen the economy, findings of this study also support the prior findings of (Athanasoglou, Brissimis, & Delis, 2008; Goddard, Molyneux, & Wilson, 2004). While the participation of bank size towards the performance of the banks varies from economy to economy like (Kusi & Opoku-Mensah, 2018) found a negative relationship between bank size and the performance of the banks in African economies while (Rao, Al-Yahyaee, & Syed, 2007) found a positive association.

Conclusion

This study examines the relationship between non-traditional Income, Size, Growth and the Performance of the banks in big three countries in South Asia which includes Pakistan, Bangladesh, and India. The profitability of the banking sector is also an indicator of economic well-being. In the modern economy, banks play a vital role by acting as a link between borrowers and lenders. There are several components which are significant for the bank's profitability. This study focuses only on non-traditional income, growth, and size of the bank by taking three big South Asian countries Pakistan, Bangladesh, and India, by using annual data from 1996 to 2015.

The findings of the study describe that non-traditional income and size of the bank have a positive and significant relationship with the performance of the banking sectors. While the growth is negatively and

significantly associated with the performance of the banks in the subject economies. (Brighi & Venturelli, 2014), (Zhou, 2014) and (Isik et al., 2018). Policy recommendation of this study suggests that banks should also explore new avenues of non-interest valued added services to their customers which will not only facilitate their customers also attract new customers which ultimately enhance the performance of the banks as well as the country. The further country should focus on that policy who create the baseline to control the fluctuation among the above-stated core variables to attract the investors and create a friendly and stable investment atmosphere in the country to enhance the performance of the banking sectors as well as the economy.

The profitability of the Banking sectors in any economy having different dimensions. This study focuses only on three main variables non-traditional income, size, and growth on investigating the performance of the banking industry. Banking is a backbone segment of every economy, future researchers should also emphasize on Z-score, traditional banking commission (TBC), net trade cycle (NTC), leverage (LEV), secondly sample size of this study contain only three big economies of South Asia, future study taken a large sample like all South Asian or Asian countries. Further coming studies should employ recent data set to investigate the current outcomes on the subject nexus. Policy recommendation of this study suggests that banks should also explore new avenues of non-interest valued added services to their customers which will not only facilitate their customers also attract new customers which ultimately enhance the performance of the banks as well as the country.

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